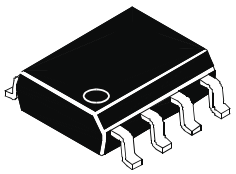
ZXM66P03N8

30V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS}$=-30V; $R_{DS(ON)}$=0.025Ω; I_D=-7.9A



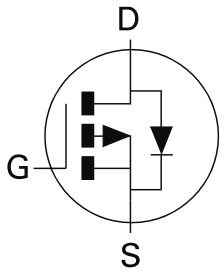
SO8

DESCRIPTION

This new generation of high density MOSFETs from Zetex utilises a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- Low profile SOIC package

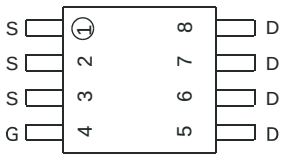


APPLICATIONS

- DC - DC Converters
- Power Management Functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXM66P03N8TA	7”	12mm	500 units
ZXM66P03N8TC	13”	12mm	2500 units



Top View

DEVICE MARKING

- ZXM6
  6N03

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	-30	V
Gate- Source Voltage	V_{GS}	±20	V
Continuous Drain Current V_{GS}=-10V; T_A=25°C(b) V_{GS}=-10V; T_A=70°C(b) V_{GS}=-10V; T_A=25°C(a)	I_D	-7.9 -6.3 -6.25	A
Pulsed Drain Current (c)	I_{DM}	-28	A
Continuous Source Current (Body Diode)(b)	I_S	-4.1	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	-28	A
Power Dissipation at T_A=25°C (a) Linear Derating Factor	P_D	1.56 12.5	W mW/°C
Power Dissipation at T_A=25°C (b) Linear Derating Factor	P_D	2.5 20	W mW/°C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	80	°C/W
Junction to Ambient (b)	$R_{\theta JA}$	50	°C/W

NOTES

(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at t≤10 secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, D = 0.05, pulse width 10μs - pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30			V	I_D=-250µA, V_{GS}=0V
Zero Gate Voltage Drain Current	I_{DSS}			-1	µA	V_{DS}=-24V, V_{GS}=0V
Gate-Body Leakage	I_{GSS}			-100	nA	V_{GS}=±20V, V_{DS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1.0			V	I_D=-250µA, V_{DS}= V_{GS}
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.025 0.035	Ω Ω	V_{GS}=-10V, I_D=-5.6A V_{GS}=-4.5V, I_D=-2.8A
Forward Transconductance (1)(3)	g_{fs}		14.4		S	V_{DS}=-15V,I_D=-5.6A
DYNAMIC (3)						
Input Capacitance	C_{iss}		1979		pF	V_{DS}=-25 V, V_{GS}=0V, f=1MHz
Output Capacitance	C_{oss}		743		pF	
Reverse Transfer Capacitance	C_{rss}		279		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		7.6		ns	V_{DD} =-15V, I_D=-5.6A R_G=6.2Ω, V_{GS}=-10V
Rise Time	t_r		16.3		ns	
Turn-Off Delay Time	$t_{d(off)}$		94.6		ns	
Fall Time	t_f		39.6		ns	
Gate Charge	Q_g		36		nC	V_{DS}=-15V,V_{GS}=-5V I_D=-5.6A
Total Gate Charge	Q_g		62.5		nC	V_{DS}=-15V,V_{GS}=-10V I_D=-5.6A
Gate-Source Charge	Q_{gs}		4.9		nC	
Gate Drain Charge	Q_{gd}		19.6		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}			-0.95	V	T_j=25°C, I_S=-5.6A, V_{GS}=0V
Reverse Recovery Time (3)	t_{rr}		35		ns	T_j=25°C, I_F=-5.6A, di/dt= 100A/µs
Reverse Recovery Charge(3)	Q_{rr}		39.9		nC	

(1) Measured under pulsed conditions. Width=300µs. Duty cycle ≤2% .
(2) Switching characteristics are independent of operating junction temperature.
(3) For design aid only, not subject to production testing.

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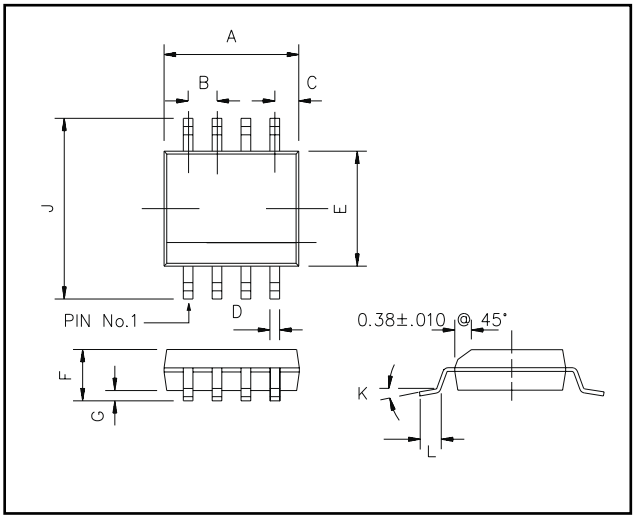
PACKAGE DIMENSIONS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	4.80	4.98	0.189	0.196
B	1.27 BSC		0.05 BSC	
C	0.53 REF		0.02 REF	
D	0.36	0.46	0.014	0.018
E	3.81	3.99	0.15	0.157
F	1.35	1.75	0.05	0.07
G	0.10	0.25	0.004	0.010
J	5.80	6.20	0.23	0.24
K	0°	8°	0°	8°
L	0.41	1.27	0.016	0.050

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